Letters

Panda Conservation

Leslie Roberts' recent article "Conservationists in panda-monium" (Research News, 29 July, p. 529) indicates the sad plight of the panda and current conservation efforts. Part of that article is a discussion of the inadequacy of current breeding programs for captive pandas. Although artificial insemination has been used, more advanced techniques of inducing follicular development with follicle-stimulating hormone (FSH) therapy (even to the point of superovulation) and ova or embryo manipulations (including embryo transfer, embryo splitting, and the use of surrogate mothers) have generally not been used. One exception is the work by Chandhuri *et al.* (*1*), who stimulated follicular development and ovulation in a giant panda through the use of exogenous hormones. While we would hope that increased opportunities for social development in young pandas and pairing of compatible mates would obviate the need for such "high-tech" approaches, the newer techniques to enhance reproduction should not be overlooked. Several of the larger American zoos have been leaders in the development and application of this technology to other wildlife. Similarly, the very poor survival of one in four newborn giant pandas suggests the need for studies of their early growth, behavior, nutritional requirements, and immunological defenses. Bottle-raising rejected newborns can be very successful if it is based on adequate knowledge of the normal newborn-maternal interaction.

Because it would be inappropriate to use giant pandas, more common bears could be used in initial studies. On a limited scale, we have been able to (i) induce ovarian development and subsequent estrus in American black bears both within and outside the normal breeding period with FSH therapy; (ii) approach superovulation with from four to six corpora lutea in the ovaries of FSH-treated bears as compared to two to three corpora lutea in control animals; and (iii) transfer an embryo between American black bears. We are currently planning interspecific embryo transfer, collecting embryos from a grizzly bear and transferring them to surrogate American black bear mothers. Similarly, comparisons between earlier data on pandas (*2*) and recent studies on captive grizzlies and American black bears indicate that there may be little difference in the nutritional physiology of all bears.

Most of the other bear species are bred in American zoos that collectively have significant resident populations. Lincoln Park Zoological Gardens in Chicago, Illinois, is a leader in breeding the panda's closest ursid relative, the South American spectacled bear. Rather than creating an international furor over the motives of the Chinese and various American zoos in arranging panda visits, is it not time for us to initiate an encompassing, coordinated study of the biology of captive ursids such that we could assist the Chinese in dramatically improving reproduction and survival of captive pandas? Such studies are not now under way. While such an effort would be expensive, the cost would likely be less than the market value of a single panda or the revenues generated by a panda visit to an American zoo. Transfer of the resulting technology to pandas could be done either in China or at an appropriate American facility with pandas not on exhibit. Pandas will not be saved by arguments in American courts, but by enlightened approaches to panda management that are based on a better understanding of ursid biology.

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REFERENCES

1. M. Chandhuri *et al.*, *Biol. Reprod.* **34** (suppl. 1), 146 (1986).
2. G. B. Schaller, H. Jinchu, P. Wenshi, Z. Jing, *The Giant Pandas of Wolong* (Univ. of Chicago Press, Chicago, IL, 1985).

Drug Testing

Eliot Marshall (News & Comment, 8 July, p. 150) does much better at reporting the social and legal aspects of the drug testing issue in his article "Testing urine for drugs" than he does at accurately reporting on the testing technology. While it is true that fluorescence polarization immunoassay (FPIA) is the newest drug testing technique, it has been commercially available since 1981 for therapeutic drug testing and since 1986 for screening of drugs of abuse. During that period, FPIA has become the most widely used drug-testing technology in the world and the second most widely used in screening drugs of abuse. It is not correct that FPIA "requires a proprietary testing device," as is reported. FPIA devices, called ADx and TDx, are the only true drug screening "systems," where instrument and reagents are optimized for use with one another. In the diagnostics industry, such systems are referred to as "prepackaged." Prepackaged instrument systems offer significant advantages in accuracy and precision, as well as cost advantages resulting from the need for fewer calibrations and quality control checks. There is nothing proprietary about the prepackaged configuration and nothing that prevents other manufacturers from developing similar devices (in fact, others have).

A source is quoted as calling a machine made by Hitachi the "state-of-the-art" and indicates it "churns out 15,000 to 18,000 results an hour." The biggest, fastest diagnostic testing instrument ever developed in the 40-year history of lab testing—not made by Hitachi—can produce only between 3000 and 3500 results per hour on a good day and under optimal operating conditions. The biggest Hitachi instruments available have barely half that throughput and, in the laboratory testing industry, comprised mainly of hospitals and commercial labs, they are certainly not considered "state-of-the-art." In fact, there is movement away from methods that are run on photometric instruments of this type.

Reported statements by the manufacturers of EMIT tests are in conflict with empirical data. Scores of laboratories throughout the United States (including our own) find they are in varying degrees less, in some cases substantially less, than 98% accurate. It is correct that the EMIT test "error is biased toward false negatives," but this statement warrants careful explanation. Since most good labs confirm initial or screening positives by gas chromatography and mass spectometry, false positives by EMIT are at worst expensive, that is, the lab spends time and money confirming positives that fail confirmation. Other than that, no harm is done, since the result is reported as negative. But a "false negative" is tested once by the screen and never confirmed—a positive sample is missed. False negatives defeat the whole purpose of testing and may bring with them substantial liability for negligence.

Quality is paramount in drug testing. False negative rates arising out of poor test sensitivity have been documented to be as high as 80% in labs using the older drug testing technologies. If drug testing is going to be done at all, it ought to be conducted with a bias for quality and with the best available technology.

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Response: Until June, the Abbott FPIA device had no competition, although two